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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/536,932	03/27/2000	Kenneth James Pettipiece	2558-605-2US	3959

20350 7590 10/07/2005

TOWNSEND AND TOWNSEND AND CREW, LLP  
TWO EMBARCADERO CENTER  
EIGHTH FLOOR  
SAN FRANCISCO, CA 94111-3834

EXAMINER

LEE, HWA S

ART UNIT PAPER NUMBER

2877

DATE MAILED: 10/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/536,932	PETTIPiece ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Andrew Hwa S. Lee	2877	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12 September 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 31-37 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 31-37 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**31-37**

Claims ~~27-30~~ are rejected under 35 U.S.C. 103(a) as being unpatentable over McNamara et al. (6,007,996) in view of Cabib et al. (5,539,517), and Hock (3,822,942).

McNamara et al. ("McNamara" hereinafter) describe an in situ method of analyzing cells comprising:

a light source for illuminating said sample with radiation within a first band of wavelengths, wherein the first band of wavelengths excites regions within said sample causing the regions to emit radiation within a second band of wavelengths;

an interferometer for spectrally resolving the wavelengths within the second band of wavelengths (Figure 2), wherein said interferometer creates an interferogram of said sample that is superimposed on an image of said sample transmitted by said interferometer, wherein said interferometer includes:

at least two mirrors; and  
one beam splitter;

a detector array, wherein said sample and said interferogram of said sample are imaged on said detector array, wherein said detector array outputs a plurality of signals corresponding to an intensity at each pixel of said array; and a processor coupled to said detector array and coupled to a monitor, said processor displaying an image of said sample on said monitor.

McNamara et al. do not expressly show a filter for the light source and that the mirrors of the interferometer are rotating mirrors, however McNamara teaches that the interferometer is disclosed in US Patent 5,539,517 to Cabib et al and Cabib et al shows a filter for the light source (column 3, lines 21+; column 10, lines 6+; column 12, lines 15+) and that the mirrors are rotating mirrors, thus it would have been inherent that the mirrors of McNamara are rotating.

McNamara et al do not show the use of polarized light, in particular, the beamsplitter being a polarizing beamsplitter. Hock shows a Sagnac interferometer in Figure 9 wherein the beamsplitter is a polarizing beamsplitter that substantially reflects a first polarization and substantially transmits a second preferred polarization. At the time of the invention, one of ordinary skill in the art would have modified the Sagnac interferometer of McNamara to use the polarizing beamsplitter of Hock's Sagnac interferometer since Hock teaches that the light leaves the interferometer "loss-free," and it is within the general knowledge of one of ordinary skill in the art to use polarized light in an interferometer to minimize light lost in an interferometer due to cross-talk.

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One of ordinary skill in the art would see that the light leaving the interferometer of McNamara is only a partial amount of light that enters the interferometer. In the McNamara interferometer, the light from the source is split at the beamsplitter so that 50% reflects to a first path and the other 50% transmits to a second path. The light traveling the first path is directed around back to the beamsplitter where half of the 50% of the light is transmitted to the detector resulting in a total amount of 25% of the original light at the detector and the other half of the 50% is reflected back to the light source. The similar occurs to light going in the second path so that there is a total of 50% of the original light eventually reaching the detector (25% from the first path and 25% from the second path).

Hock teaches that the polarized Sagnac interferometer is “loss-free” as explained in column 9, lines 58+ so that all the light entering the interferometer reaches the detector. Therefore, one of ordinary skill in the art would have modified the interferometer of McNamara with Hock.

With regards to claim 32, Official Notice is taken that polarizing beamsplitting cubes are well known in the art and therefor one of ordinary skill in the art would have used a polarizing cube since the various embodiments of polarizing beamsplitters are functional equivalents. Furthermore, since applicant has not disclosed that a cube solves any stated problem or is for any particular purpose and it appears that the invention would perform equally with a polarizing beamsplitter plate, the cube lacks criticality in the claimed invention and does not produce unexpected or novel results.

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As for claims 33 and 34, it would have obvious to one of ordinary skill in the art to provide the s-polarized and p-polarized beams (normal and parallel) since they are plane polarized as taught by Hock and s-polarized with the p-polarized light is a notoriously known nomenclature for plane polarized light.

With regards to claim 35, it would be obvious to a skill artisan that the mirrors should be adjustable independent of each other in order to optically align the mirrors. Furthermore, McNamara nor Cabib disclose that the two mirrors are configured to only turn dependently.

With regards to claim 36, Official Notice is taken that dielectric layered are well known in the art and therefor one of ordinary skill in the art would have used a dielectric layered/coated mirror in order to maintain polarization fluctuation.

With regards to claim 37, McNamara does not expressly show a filter located upstream from the interferometer (column 12, lines 15+).

### ***Response to Arguments***

In response to Applicant's argument that the prior art does not show the claimed matter, the Examiner respectfully disagrees for reasons demonstrated above.

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Kramer, Jr. shows a ring laser using dielectric mirrors to maintain polarization of the beams.

McGinnis shows an polarization interferometer showing various types of polarizing beamsplitters including a cube beamsplitter.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew Hwa S. Lee whose telephone number is 571-272-2419. The examiner can normally be reached on Tue-Fr.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley Jr. can be reached on 571-272-2800 ext 77. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'HWA (Andrew) Lee', is positioned above the printed name.

**HWA (ANDREW) LEE  
PRIMARY EXAMINER**